



The logo for EMBL-EBI (European Bioinformatics Institute) is displayed. It features a circular pattern of small circles on the left, followed by the text "EMBL-EBI" in large, bold, black letters. Below this, it says "European Bioinformatics Institute". A navigation bar at the top includes links for "Get", "Nucleotide sequences", "for", "Site search", "EBI Home", "About EBI", "Research", "Services", "Toolbox", "Databases", "Downloads", "Submissions", and "ANALYSIS TOOLS".

## EBI Generic DB Entry Retrieval

ID AE007337 standard; DNA; PRO; 10216 BP.  
XX  
AC AE007337; AE005672;  
XX  
SV AE007337.1  
XX  
DT 31-JUL-2001 (Rel. 68, Created)  
DT 02-SEP-2002 (Rel. 72, Last updated, Version 4)  
XX  
DE Streptococcus pneumoniae TIGR4 section 20 of 194 of the complete genome.  
XX  
KW .  
XX  
OS Streptococcus pneumoniae TIGR4  
OC Bacteria; Firmicutes; Lactobacillales; Streptococcaceae; Streptococcus;  
OC Streptococcus pneumoniae.  
XX  
RN [1]  
RP 1-10216  
RX MEDLINE; 21357209.  
RX PUBMED; 11463916.  
RA Tettelin H., Nelson K.E., Paulsen I.T., Eisen J.A., Read T.D., Peterson S.,  
RA Heidelberg J., DeBoy R.T., Haft D.H., Dodson R.J., Durkin A.S., Gwinn M.,  
RA Kolonay J.F., Nelson W.C., Peterson J.D., Umayam L.A., White O.,  
RA Salzberg S.L., Lewis M.R., Radune D., Holtzapple E., Khouri H., Wolf A.M.,  
RA Utterback T.R., Hansen C.L., McDonald L.A., Feldblyum T.V., Angiuoli S.,  
RA Dickinson T., Hickey E.K., Holt I.E., Loftus B.J., Yang F., Smith H.O.,  
RA Venter J.C., Dougherty B.A., Morrison D.A., Hollingshead S.K., Fraser C.M.;  
RT "Complete genome sequence of a virulent isolate of Streptococcus  
pneumoniae";  
RL Science 293(5529):498-506(2001).  
XX  
RN [2]  
RP 1-10216  
RA Tettelin H., Nelson K.E., Paulsen I.T., Eisen J.A., Read T.D., Peterson S.,  
RA Heidelberg J., DeBoy R.T., Haft D.H., Dodson R.J., Durkin A.S., Gwinn M.,  
RA Kolonay J.F., Nelson W.C., Peterson J.D., Umayam L.A., White O.,  
RA Lewis M.R., Radune D., Holtzapple E., Khouri H., Wolf A.M., Utterback T.R.,  
RA Hansen C.L., McDonald L.A., Feldblyum T.V., Angiuoli S., Geswan P.,  
RA Hickey E.K., Holt I.E., Loftus B.J., Ujwal M.L., Yang F., Smith H.O.,  
RA Venter J.C., Dougherty B.A., Morrison D.A., Hollingshead S.K., Fraser C.M.;  
RT ;  
RL Submitted (29-JUN-2001) to the EMBL/GenBank/DDBJ databases.  
RL The Institute for Genomic Research, 9712 Medical Center Dr, Rockville, MD  
RL 20850, USA  
XX  
DR SPTREMBL; Q97SS4; Q97SS4.  
DR SPTREMBL; Q97SS5; Q97SS5.  
DR SPTREMBL; Q97SS6; Q97SS6.

DR SPTREMBL; Q97SS7; Q97SS7.

DR SPTREMBL; Q97SS8; Q97SS8.

DR SPTREMBL; Q97SS9; Q97SS9.

DR SPTREMBL; Q97ST0; Q97ST0.

DR SPTREMBL; Q97ST1; Q97ST1.

DR SPTREMBL; Q97ST2; Q97ST2.

DR SPTREMBL; Q97ST3; Q97ST3.

XX

FH Key Location/Qualifiers

FH

FT source 1..10216  
 FT /db\_xref="taxon:170187"  
 FT /organism="Streptococcus pneumoniae TIGR4"  
 FT /strain="TIGR4"

FT CDS 153..845  
 FT /codon\_start=1  
 FT /db\_xref="SPTREMBL:Q97ST3"  
 FT /transl\_table=11  
 FT /gene="SP0240"  
 FT /product="phosphoglycerate mutase family protein"  
 FT /protein\_id="AAK74420.1"  
 FT /translation="MVKVRLLVLRHGKTMFNTIGRAQGWSDTPLTAEGERGIQELGIGL  
 RESDLQFERAYSSDSGRTIQTMGIILEELGLQGEIPYRMDKRIREWCFGSDGAYDGDL  
 FMGIIIPRFNVDHVHQLSYALAEGLVEVDTAGWAEGWEKLSGRIKEGFEMIAKEMEDQ  
 GGGNALVVSHGMTIGTIVYLINGMHPGLDNGSVTILEYEDGQFRVEVGDRSYRELGR  
 EKMEEGSI"

FT CDS complement(2583..3674)  
 FT /codon\_start=1  
 FT /db\_xref="SPTREMBL:Q97ST2"  
 FT /transl\_table=11  
 FT /gene="SP0242"  
 FT /product="ABC transporter, ATP-binding protein"  
 FT /protein\_id="AAK74421.1"  
 FT /translation="MSEIKIINAKKIYHDVPIENLNITIPKGSLFTLLGASGCGKTTL  
 LRMIAGFNSIEGGEFYFDDTKINNMEPSKRNIGMFQNYAIFPHLTVRDNVAFGLMQKK  
 VPKEELIQQTQNCKYLELMQIAQYADRKPDKLSSGGQQQRVTACALAVNPSVLLMDEPLSN  
 LEAKLRLDMRQAIREIQLHEVGITTYYVTHDQEEAMAISDQIAVMKDGVIQQIGRPKELY  
 HKPANEFVATFIGRTNIIIPANLEKRSRGAYIVFSDGYALRMPALDQVEEQAIHVSIRPE  
 EFIGDESGDIEGTIRD SYV LGLNTDYFIETGFASKIQVSEESTFEEDLQKG NRIRL RIN  
 TQKL NIFSADGSQNL IKGVNHGT"

FT CDS complement(3687..4703)  
 FT /codon\_start=1  
 FT /db\_xref="SPTREMBL:Q97ST1"  
 FT /transl\_table=11  
 FT /gene="SP0243"  
 FT /product="iron ABC transporter, iron-binding protein"  
 FT /protein\_id="AAK74422.1"  
 FT /translation="MKKKWMYYAACSSNESADDSSDKGDGGSLVVYSPNSEGLIGATI  
 PAFEEKYGIKVELIQAGTGELFKKLESEKEPVADVIFGGSYTQYTTGELFENYTSKE  
 NDNVKEYQNTTGYSTPYTLGDSVLIVNPDLTKGMNIEGYNDLFKPELKIGKIAADPAN  
 SSSAFAQLTNMLQAGGGYKDDKAWSYVKDLFTLIDKGKIGSSSSSYKVVADGEMAVGLS  
 YEDPAVKLLNDGANIKVYVPEGTVFLPASAIVKKSKNMENAKKFIDFIISQEVDQTL  
 GTTTTNRPVKNAKTSENMKPIDKIKTLTEDYDYVIKNKSDIVKKYNEVFTDIQSKQ"

FT CDS complement(5008..5115)  
 FT /codon\_start=1  
 FT /db\_xref="SPTREMBL:Q97ST0"  
 FT /note="identified by Glimmer2; putative"  
 FT /transl\_table=11  
 FT /gene="SP0244"  
 FT /product="hypothetical protein"  
 FT /protein\_id="AAK74423.1"  
 FT /translation="MSHSFKKSLQKEILHRSSIAAFVTSRAFSDTVSPI"

FT CDS complement(5290..6066)  
 FT /codon\_start=1  
 FT /db\_xref="SPTREMBL:Q97SS9"

FT /note="identified by match to PFAM protein family HMM  
FT PF02143"  
FT /transl\_table=11  
FT /gene="SP0245"  
FT /product="pyruvate formate-lyase-activating enzyme,  
FT putative"  
FT /protein\_id="AAK74424.1"  
FT /translation="MEISKGIIFNIIQHFSIHDPGIRTTVFLKGCPWCSNPESQR  
FT MKPEKMKDAQREKFTILVGEETVVEIITEVLKDKEFYEESGGLTLSGGEIFAQFEFAK  
FT AILKSAKEHHIHTAIETTAFVDHEKFIDLIQYVDFIYTDLKHYNSIKHKKVTGVFNQMI  
FT IKNIHYAFSQNKTVLIRIPVNPNNSLEDAEKFATLFNSLNIDQVQLPFHQFGENKY  
FT RLLNRKYEMDGINALHPEDLIDYQKVFLNHHINCYF"  
FT CDS 6188..6934  
FT /codon\_start=1  
FT /db\_xref="SPTREMBL:Q97SS8"  
FT /transl\_table=11  
FT /gene="SP0246"  
FT /product="transcriptional regulator, DeoR family"  
FT /protein\_id="AAK74425.1"  
FT /translation="MKRLEQI I KLVSEYEKIDVNTLSEKLNVS KVTIRKDLDKLESKGL  
FT LHREHGYAVLNSGDDLNVRSL SINYETKRKIVQEAVKLVDNETIMIESGSTCALLAEEI  
FT CKQKRNVTIVTNSFFIANFVRAYDSCRVIVLGGEFQKDSQVTVGPLLKEMIQTFHVCQA  
FT FVGTGDGYDKEMGFTGKDLMRSEVVQYISAVSDKIVLTDSSKFDKRGTVRRFALSQVYE  
FT VITDEKLSKQNIATLENAGIMVKVVS"  
FT CDS 6947..7927  
FT /codon\_start=1  
FT /db\_xref="SPTREMBL:Q97SS7"  
FT /note="similar to SP:P37078 GB:X66059 PID:43938; identified  
FT by sequence similarity; putative"  
FT /transl\_table=11  
FT /gene="SP0247"  
FT /product="transcriptional regulator"  
FT /protein\_id="AAK74426.1"  
FT /translation="MNQDRNKLLSKIA YLYYIENLNQS QIAAKLGIYRTSISRMLTEAR  
FT NVGIVKIEIENFDTNMFKLEN YVKEK SLES IIPNEFDDTPTILSERISQVAAGVLR  
FT NLIDDNMKIGFSWGKSLNLVDL IHSKSVRNHFYPLAGGP SHIHAKYHVNTL IYEMSR  
FT KFHGECTFMNATIVQENKLLADGILQ SRYFENLKN SWKLDIAVVGIGDFSNKGKHQWL  
FT DMLTEDDFKELTKVKT VGEICCRFFDSKGKEVYENLQERTIAISLEDLKNIPQSLAVAY  
FT GDTKVSSILS VLRANLVNHLITDKNTILK VLEEDGDLTFREILGE"  
FT CDS 8122..8442  
FT /codon\_start=1  
FT /db\_xref="SPTREMBL:Q97SS6"  
FT /transl\_table=11  
FT /gene="SP0248"  
FT /product="PTS system, IIA component"  
FT /protein\_id="AAK74427.1"  
FT /translation="MEMIVPDQIIMGLILYAGDAKQHIYKALDYIKNGTCERCEEEIQL  
FT ADAALLEAHNLQTKFLAQEASGTKTEITALFVHSQDHLMTSMTEINLIKEIISLRKELH  
FT KK"  
FT CDS 8488..8796  
FT /codon\_start=1  
FT /db\_xref="SPTREMBL:Q97SS5"  
FT /transl\_table=11  
FT /gene="SP0249"  
FT /product="PTS system, IIB component"  
FT /protein\_id="AAK74428.1"  
FT /translation="MVKIGLFCAAGFSTGMLVNNMKIAAQSSGVEAEIEAFSQSKLADY  
APNIDVALLG P QVAYTL DKSKEICDKCDVPIAVIPMDYGM LDGKKVLDLALS LISG"  
FT CDS 8789..10111  
FT /codon\_start=1  
FT /db\_xref="SPTREMBL:Q97SS4"  
FT /transl\_table=11  
FT /gene="SP0250"  
FT /product="PTS system, IIC component"  
FT /protein\_id="AAK74429.1"

FT /translation="MGKKRRFIMSKMDVQKIIAPMMKFVNMRGIIALKDGMIALPLTV  
 FT VGSFLIMGQLPFEGLNKSIAVFGANWTEPFMQVYSGTFAIMGLISCFASIAYSYAKNS  
 FT GVEALPAGVLSVS AFFILLRSSYIPKQGEAIGDAISKVWFGGQGIIGAIIGLVVGSIY  
 FT TFFIKRKIVIKMPEQVPQAIAKQFEAMIPAFVIFLSSMIVYILAKSLTNGGTIFIEMIYS  
 FT AIQVPLQGLTGSLYGAIGIAFFISFLWWFGVHGQS VVNGVTALLSNLDANKAMLASA  
 FT NILSLENGAHIVTQQFLDSFLILSGSGITFGLVVAMLFAAKSKQYQALGKVAAPAI FNV  
 FT NEPVVF GFP IVMVNPVMFV PFL VPVLA AVIVY GAIATGFMQPFSGVTL PWSTPA ILSGF  
 FT LVGGWQGVITQLVILAMSTLVYFPFFKVQDR LAYQNEIKQS"  
 XX

SQ	Sequence 10216 BP; 3252 A; 1519 C; 2088 G; 3357 T; 0 other;	
	aacactgaat tagtttgaat ttgattttca tctaataatct ttatattaatg aactcctaaa	60
	cttttcata ata atctccct tcaaaaagtcg cctgtatggg tggcttttat ttatcattc	120
	atgatataat agaaggcaaa ac ggaggacgga aaatggtaaa agtacgattt gat tttgtac	180
	gtcatggcaa gaccatgtt aacacgattt gtcgcgcga aggttggagc gatactccct	240
	taactgctga aggtgaacga gggattcaag agttaggaat cggtttgcga gaatctgatc	300
	tacagttga gcgtgcttat tcgagtgtt ctggcgatc cattcagacc atggaaatta	360
	tccttgaaga acttggctt cagggggaaa tcccttatcg catggacaag cgtatccagag	420
	aatgggtttt cggtagttt gatggagcct atgatggcga tcttttcatg ggcattattc	480
	ctcgatctt taatgtggac cacgttccacc aattgtctta tgctgaactg gctgaggcct	540
	tggtagaggt cgatacagct ggttggcgtg aaggctggga aaaactcagt ggcgaatca	600
	aggaaggcct taaaaatgatt gcaaaaagaaa tggaaagatca aggtggaggt aacgccttg	660
	ttgtcagcca tggaaatgact atttggaaacca ttgtttatct gattaatggc atgcatccgc	720
	atggtctggaa taatggtagc gtgacaatcc ttgaatatga ggacggccag tttagggttg	780
	aagtgtcgg tgaccgttgtt acccgagagc taggacgtga gaagatggaa gaaggctcta	840
	ttaatcagt ctagacttgc ttgccccatgag cttagggattt gataagaata tcaagataag	900
	aaaaaacagc cgagggcact ccttcggct gtttttcatg tggaaaacta aagtgtatg	960
	ctattgcttt tagagattt cataaacaag agcaaggaac ctactgttag aacagtccagg	1020
	atagttgaca aggttgcggc tacaccgtaa ttccctctga gaacctctgt ataaatagct	1080
	acagtcatcg ttcttgcgtt gacattgttag aggaggatag aagttagagag ttttggaaatc	1140
	attgtactc aagataagat ggctccagaa atgataccag atagcatcat tggagttgt	1200
	atcttagcaa aggttatttgc acgactactt cctaagctt cagcagcttc ttcaataactt	1260
	ggtgcttattt gttgttagt agcaacagat gagcgaatag tataaggtaa tcttcggca	1320
	gataagagaca taatcaagat gaaagcagtc cctgtatca taagaaatcc acttccaaat	1380
	agaccagtt tgaaggaaga aatgaaggca atccctagaa cggttccctgg tacaatataa	1440
	ggtaccatac tgaggctgtc aattaatgtt gtaaacaat tccgtttct aacggctagg	1500
	taggagataa atgtcgcaaa tagaacaact agaactaagg caatcaaagg gatacaatg	1560
	gtattgaaaa tagcagatcc catacgatgg aaagctaccc tggtaactgtt tggagaataa	1620
	cctttaacag ataccatacc tggatgtttt aggaaagagg tataaattaa gtagatttga	1680
	ggtaaaacag agataaaat aatccgttag actgttgcatt aatggcagc cattttccct	1740
	ttttaggctc aattggatgg agcagattca tggtaactgtt gtagcggttt	1800
	gcaatgtgtt ttggataag gaaaattgcc aaggcaatga taatcgccat aattgcaaaaa	1860
	gcagaatttc ctccaaacctc gctaataaat tgggtataaa tcaggacagg gaaagtccga	1920
	tacccttcgc caatcaacat aggcgttcca aagtctgaga atgctctcat aaatacaagc	1980
	aaggagctgc tagtaaggtt ggaacttagga gaggtaaaac aaccgttacg ataggtttaa	2040
	atccgaagga ccccatgttt tca gctgtctt caagttaga attgtcaata ctgttcat	2100
	ttccagcaac atatagaaat accagtggga atagttgcag tggtaaagaca agtacaattc	2160
	ctttgaatca ataaatatcg atagctggaa gataaaaggc atttgcattaa aatttagtga	2220
	tgacctcatt tcgtccttagc aagagaaccc aggagttaggc tcctacgaaa ggagctgaca	2280
	tggaaatcaat gataatcaat atttgcgtt atttctccc ctggtaactca tacatagaga	2340
	agagataagc taatagggtt cctacaacta aggaagtgtt agtagcggta atggaaacct	2400
	tggaaactgtt gactgtgtc tca gactgtt aggttactt aatggaaatgt acaaaattag	2460
	ctagttagaa ttgtccttc tggtaatgtt ctgtcttgag cacggtaacg ataggataaa	2520
	cgagaaagat aggataggta agaaagagga agaaagagga aactgtccaa atatttagtt	2580
	ttttacgttc catgggttgc tcctttatc aggtttggg aaccatctgc agaaaagatg	2640
	ttaattttt gctgttgcgtt tcgttagacga atacgattgc ctggatgtt atcttctca	2700
	aaagtgtattt cttcaacta ttgaaatccc gaggcaaaac ctgtctcaat gaaataatcc	2760
	gtatttagtc caagataagac gctatctcta atagttctt caatatctcc agattcatct	2820
	ttgataaact cttcgggacg aatgttaca tggtaatgc ttctcctcaac ctgatcaaga	2880
	gctggcattc gaagggcata gccatctgaa aagacgat aagcggccgtc gctccgttt	2940
	tcaagattgg cagggataat atttgcgtt ccgataaagg ttgcccacaaa ctcat	3000
	ggtttagat agagttctt tggcgcccg atttgcgtt gcaatccatc tttcataaca	3060
	gcaatttgcgtt ctgaaatagc catggcttct tcttgcgtt gggttacata aacagggt	3120
	attcccactt cgtgttgcgtt ttctcggatg gcttgcgtca tatccaagcg aagttggcc	3180
	tccagattac taatgtggcgtc gtcatgagg agaacactt gattaaccgc taaggcgt	3240
	gccaagggtga cacgttgcgtt ttgtccacca ctgagttat cggcgttccat	3300

tgagcaattt	gcatgaggttc	aagatacttg	ttggtctgtt	gaatcaattc	ttcttttggaa	3360
accccttttt	gcataagacc	aaaagcaacg	ttgtctcgga	cagtcaaatg	tggaaaataa	3420
gcgttagttt	ggaaaaccat	cccgatattg	cgttgcgtgg	gttccatatt	attgattttt	3480
gtatcatgaa	agtaaaattc	tccacacctcg	atactgttgaa	aacctgcaat	catacgaaga	3540
agggtcgttt	tcccacatcc	tgaagctcca	agaagggtaa	agagacttcc	ttttggaaatt	3600
gtaatgttca	aattctcaat	aacagggaca	tcgtggtaga	ttttttggc	gttaataatt	3660
ttgatctcac	tcatalogtga	cctcttttac	tggttagatt	ggatatctgt	aaagacttcg	3720
ttgtattttct	taacgatatac	tgatttattc	ttgatgacat	aatcataatc	ttcagtgagt	3780
gttttggattt	tgtcaatttgg	tttcatgttt	tcgcttgcgtt	tagcattttt	acgaacacagga	3840
cggtagtag	tggttgcacc	aagtgtatct	tgtacttctt	gagagataat	aaaatcgata	3900
aatttcttgg	cattttccat	atttttagat	tttttaacga	tagcagcact	agcaggtagg	3960
aagacgggtt	cttcttttgg	atagactacc	ttaatgttag	ctccgtcatt	taagagttt	4020
actgctggat	cttcataaga	gagaccaaca	gccatttctc	catcagcgcac	tactttatag	4080
acactagatg	aacttgaacc	gattttacca	tcaataagtgt	tgaaaagatc	ttttacataa	4140
gaccaagcct	tatcatctt	gtaaccacct	tgagcttgc	gcataattgt	taattgagca	4200
aaggcgctag	aagagtttgc	tgggtcagca	gttgcgattt	ttccttttag	ttcagggttt	4260
aaaagatcg	tatattccctc	gatgttcatg	ccttttagta	aatcagggtt	gacgattaaa	4320
acactaccat	ctagtgata	aggagtagag	tagccagtttgc	tgtttgata	ttctttgata	4380
acatttatcat	tttcttttgc	agtagatgtt	tcaaagagtt	ctccgtgggt	agtatattgt	4440
gtataagaac	caccaagat	aacatcagct	acaggaactt	cttttctga	ctctagttt	4500
ttgaaaagtt	ctccagttacc	agcttgaatc	agttctactt	tgataaccata	tttttcttca	4560
aaggcaggaa	tagttgcctc	aattaagccc	tctgagtttgc	gtgaataaaac	gactagcgaa	4620
ccggcgtctc	ctttatcaga	tgaactgtca	tcggcagatt	cattagaaga	acaagcagca	4680
taatacatcc	atttctttt	catgtatggat	acctccgttgc	tgttattttaa	gtttattttt	4740
aaacaatgt	agcgttttta	aaacatacaa	ttcttattcta	tagtgtatttgc	aatctataaac	4800
agtacacttt	gactgctaaa	atatttctat	aaattaatttgc	gactttcctg	atagagatgt	4860
tcacatctt	tttcaatttca	ctatatttgc	gtaaaatttgc	ctacaaaaaa	aagaatagcc	4920
tattttacta	ttcttcttgc	tgatttcaat	tcctttgggg	aaatatggag	atacttttgc	4980
aatcctgaca	aatgggttgc	tcttttcttgc	aatcggttgc	actgtatcgg	agaatgcgcg	5040
tgaggtcaca	aaggctgcga	tagagcttgc	atggagaatttgc	tcttttggaa	gagatttttgc	5100
aaaggaatgt	gacatccgct	accccttgc	aagggtttttgc	tgtgataagt	atagcagtttgc	5160
aaaaattctt	gagcaaggta	aaatagaaaa	ggtttggcttgc	aaatttttttgc	gc当地acctt	5220
ttgaaaagtt	aagtatgtat	tatagatgttgc	tgttatttttgc	aaatagcttgc	agcatttcaat	5280
ggaaataaaac	tagaaataac	aattaatatgc	gtgggttgc	aataccttttgc	gataatcaat	5340
aagatcttca	ggatgaagtgc	cgttgatttgc	atccatttca	tatttccgttgc	ttaataaaacgtt	5400
atatttgc	tcaccaaatttgc	gatgttttttgc	gagtagttgc	acttggcgttgc	tatttataatgc	5460
gttaaataga	gtagcgttttgc	tttcttgc	ctctaaacttgc	tgttatttttgc	taggataat	5520
tggatttctt	aaaacgtat	tttatttttgc	tgaaaagatgc	taatgaatgttgc	ttttataatgc	5580
catttgcattt	aaaaccccgat	tcacttttttgc	atgttttataat	gaatttataat	gttttaggttgc	5640
tgtgtatgtt	aaatccacat	attgtatgttgc	atcaataatgc	ttttcatgttgc	caacaaaggatgc	5700
agtagtttca	atggcgtgttgc	gtatgtatgttgc	ttcttttagtgc	gatgtttagtgc	tggcttttagtgc	5760
aaattcaaaac	tgagcaataat	tttcaccccttgc	tgataaatttgc	aaacctccac	cggttccat	5820
gtaaaattctt	ttgtcttttgc	atacctctgttgc	aataatttgc	tctacagtgc	tttcttcacc	5880
gactaagggt	aatttcttgc	gttgaggatgc	tttcatgttgc	tcagggttttgc	ttctttggatgc	5940
ttcaggatgtt	gaacaccat	gacagcgcag	aggacatccttgc	ttttaaaaaaa	cagttgtacgc	6000
aatacccgat	ccgttcatgttgc	ttgaaaatgttgc	ttgaaatatttgc	aaaataatttgc	cttttagat	6060
ttccataatgtt	gttccttgc	ttcataatgttgc	tatcctatgc	caaaaacgttgc	agaaaaacaaat	6120
ttacgaacgtt	aagggttgc	tgttgcgttgc	tttttttttgc	tttttttttgc	tttttttttgc	6180
gtgtaaaatgtt	aaaagatttgc	aacaaattat	taaatttagtgc	tcagaatatgc	aaaagatgttgc	6240
cgttaatata	ttatcggtttgc	aattttatgttgc	atcgaaatgttgc	acgatttgc	aagatttgc	6300
taaatttagat	tcaaaaaggat	tatttgcgttgc	agagcatgttgc	tatgttgcgttgc	taaattatgttgc	6360
agatgactt	aatgtacgttgc	tgtcaat	ttatgttgcgttgc	aaagaaaaaa	ttgttgcgttgc	6420
agcagtaaaa	ttgggtgttgc	ataatgttgc	aataatgttgc	gaatcttgcgttgc	cgacccgttgc	6480
tttacttgc	gaggaaatttgc	gcaagcaaaa	aaggaaatgttgc	acgatttgcgttgc	caaatttgcgttgc	6540
ttttatgttgc	aattttgttgc	gagcttgcgttgc	ttcatgttgcgttgc	gttatttgcgttgc	ttgggtgttgc	6600
gtttcagaaa	gattcacagg	tgacttgcgttgc	accttttgcgttgc	aaagaaatgttgc	tacagacttgc	6660
tcatgttgcgttgc	caagcttttgc	ttgggtgttgc	tgttgcgttgc	aaagagatgttgc	gctttaccgg	6720
aaaagatttgc	atgcgttgcgttgc	aggtatgttgc	atatatttgc	gcagtgttgcgttgc	ataaaatgttgc	6780
tgtcctaactt	gactcaatgttgc	aatttgcgttgc	aagggttgcgttgc	gttgcgttgc	tttgcgttgc	6840
tcaagtctat	gaagtaataat	cagacgaaa	acttttgcgttgc	caaaatataat	ctacatttgc	6900
aaatgttgcgttgc	ataatgttgc	aggtatgttgc	gttgcgttgc	aaagaggttgc	atcaagat	6960
gaataaaacttgc	ctttcttgc	tttgcgttgc	gttgcgttgc	aaatatttgc	atcagtcaca	7020
aatagcagca	aaatttagat	tttgcgttgc	ctcttgcgttgc	agaatgttgc	cagaagcaag	7080
gaatgttagat	attgttgcgttgc	ttgaaaatgttgc	gttgcgttgc	accaat	ttaagggttgc	7140
aaattatgttgc	aaagaaaaat	acagtttgc	aaagtttgc	attatttgc	atgaat	7200

tgatactcca	acaattttat	ctgaaagaat	ttctcaagtt	gcagcaggcg	tccttaggaa	7260
tctaatttat	gataatatga	aaattggctt	ttcttggggg	aaaagttaa	gtatattgt	7320
agatttaatt	cacagtaaaa	gtgtccgaaa	tgttcaactc	tatcctctag	caggtggtcc	7380
tagtcacata	cacgcttaat	accatgtgaa	tacactgatt	tatgaaatgt	ctagaaaatt	7440
tcatggagag	tgtacattta	tgaatgcaac	gattgtgcaa	gaaaataaaat	tgttagcaga	7500
tggtattttg	caatcaagat	atttgaaaaa	tttggaaaat	agttggaaag	atttagat	7560
agctgttagtc	ggaattggtg	attttagcaa	taaaggaaaa	catcaatggt	tagacatgct	7620
tacagaggat	gactttaaag	aattgaccaa	agttaaaact	gttaggagaaa	tttgtgtcg	7680
atttttgtat	tcaaaaaggta	aagaagtcta	tgaaaactta	cagggaaagaa	cgatagcaat	7740
ctctttggaa	gatttaaaaaa	atattcctca	aagtttagct	gttgcttacg	gtgatcacaa	7800
agtatctcg	attcttctg	tcttcgtgc	taattttagta	aatcatttga	ttacagacaa	7860
aaatacaatt	ttaaaaagttt	tggaagaaga	tggggatttg	acttttagag	agattctagg	7920
tgagtaaaaa	tgatagactg	attcagtta	tcgttttct	ttttagttga	ttgcacattt	7980
gtgcttatat	aaacaaaaat	agtttatctg	ttgttttgg	attgacaact	ttattatgt	8040
gttgtattct	atagttacaa	aagaaaattt	taaaattca	aatgaaaaaa	gtcttttaca	8100
tagtgaatag	aggaggaatt	tatggaaatg	attgttccag	atcaaattat	catgggttta	8160
attttatatg	ctggtgatgc	gaaacaacat	atttataaag	cgtaggat	cataaaaaat	8220
ggtacatgtg	aacgggtgtga	agaagaaaata	cagttagctg	atgcagcctt	attagaagct	8280
cataatctac	aaacaaaatt	tttggcacag	gaagcgtctg	gtacaaagac	agaaattaca	8340
gctcttttg	ttcattcaca	agatcatctc	atgaccagta	tgacggagat	taatttaatc	8400
aaagaaattta	ttagtttgag	aaaagaactt	cataaaaaat	aatactagag	tattatcatt	8460
gttattaaca	tagaggagga	aaacataatg	gtgaagattt	gtttgtttt	tgccagcaggt	8520
ttttctactg	gtatgcttgt	aaataatatg	aaaattgcag	cgcaatctag	tggagtttag	8580
gcagaaatag	aggcggtttc	tcagtctaaa	ttagcggatt	atgcgc当地	tatagatgtt	8640
gcactattgg	gtccacaagt	tgcttataca	ttagataat	caaaagaaat	ttgtgataag	8700
tgtgtatgtc	cgatagctgt	tattccgtat	atggactat	gtatgttag	tggaaaaaaa	8760
gtattagatt	tggccctatc	ttttagttgt	gggtaagaaa	aggagattt	ttatgtcaaa	8820
gatggatgtt	cagaaaatca	ttgcaccgat	gatgaagttt	gtgaatatgc	gtggcattat	8880
agctctaaaa	gatggatgt	tagcaatttt	gccattgaca	gtagttggta	gtttgttctt	8940
gattatggga	caattggccgt	tcgaaggatt	aaataagac	attgctagtg	tttttgagc	9000
taattggaca	gagccgttta	tgcaagtata	ttcaggaact	tttgcttata	tgggtctaat	9060
ttcttggttt	tcaattgcct	attcttatgc	taagaatagc	ggagtagagg	ctttaccagc	9120
tggagttcta	tctgtatctg	cattcttat	tttgcttaaga	tcatcttata	tccctaaaca	9180
aggtgaggcg	attggggacg	ctattagtaa	agtttggttt	ggaggccaag	gaattatcg	9240
tgctatcatt	ataggtttgg	tagtaggaag	tatttatacc	ttctttataa	agagaaaaat	9300
tgttattaag	atgccagaac	aagtccaca	agctattgc	aaacagttt	aagcaatgt	9360
tccagcatt	gtatatttct	tatcttctat	gattgtat	attttagcga	agtcattgac	9420
taatggcgg	acattcatag	aaatgattta	ttctgtctt	caagttccgt	tgcaaggttt	9480
aactggatct	ttgtatggtg	ctattggaat	tgcattctt	atatcattt	tgtgtggtt	9540
tgggttcat	ggcaatcg	tagtaaatgg	agtagtgaca	gctctgttt	tatctaatct	9600
tgatgctaat	aaagctatgt	tagcctctgc	taatctatca	ttagaaaatg	gtgcacat	9660
tgttactcaa	caatttttag	attcattttt	aattctatca	ggttcaggga	ttacgtttgg	9720
tctttagtt	gccatgttt	ttgcagcaaa	atcaaaca	taccaagcct	tagaaaaagt	9780
tgcagcttt	ccagcaat	ttaacgtaaa	tgagccagtt	gtatgttgat	ttccgattgt	9840
catgaatcca	gttatgttt	taccttcat	tcttggccct	gtacttgca	ctgtgatagt	9900
atatggagct	attgcaacag	gtttcatgca	gccattctca	ggggtaacat	tgccctggag	9960
tacaccagct	attttatcag	gatttttgg	gggtggatgg	caaggagtt	ttactcagct	10020
ggtgatattt	gcgtatgtct	cattggttt	tttccattc	ttaaagttac	aggatcg	10080
agcttaccaa	aatgaaatca	aacaatctt	gaggttttt	tgtgttact	ttaaaactc	10140
acatttgc	taaaaattag	agagttaaa	ttttctagt	taaaagctt	aaaatttct	10200
taaaaaatcg	tattat					10216

//

---

Please contact [support@ebi.ac.uk](mailto:support@ebi.ac.uk) with any problems or suggestions regarding this site.

[General](#) [Description](#) [References](#) [Links](#) [Keywords](#) [Sequence](#)

### General information

Entry name	<b>Q97ST2</b>
Accession number	<b>O97ST2</b>
Created	TrEMBLrel. 18, 1-OCT-2001
Sequence update	TrEMBLrel. 18, 1-OCT-2001
Annotation update	TrEMBLrel. 21, 1-JUN-2002

### Description and origin of the Protein

Description	ABC transporter, ATP-binding protein.
Gene name(s)	SP0242.
Organism source	Streptococcus pneumoniae.
Taxonomy	Bacteria; Firmicutes; Bacillus/Clostridium group; Lactobacillales; Streptococcaceae; Streptococcus.
NCBI TaxID	<a href="#">1313</a>

### References

[1] Tettelin,H., Nelson,K.E., Paulsen,I.T., Eisen,J.A., Read,T.D., Peterson,S., Heidelberg,J., DeBoy,R.T., Haft,D.H., Dodson,R.J., Durkin,A.S., Gwinn,M., Kolonay,J.F., Nelson,W.C., Peterson,J.D., Umayam,L.A., White,O., Salzberg,S.L., Lewis,M.R., Radune,D., Holtzapple,E., Khouri,H., Wolf,A.M., Utterback,T.R., Hansen,C.L., McDonald,L.A., Feldblyum,T.V., Angiuoli,S., Dickinson,T., Hickey,E.K., Holt,I.E., Loftus,B.J., Yang,F., Smith,H.O., Venter,J.C., Dougherty,B.A., Morrison,D.A., Hollingshead,S.K., Fraser,C.M., **Complete genome sequence of a virulent isolate of Streptococcus pneumoniae.** (2001) *Science* **293**:498-506

Position	SEQUENCE FROM N.A.
Comments	STRAIN=TIGR4;
Medline	<a href="#">21357209</a>
PubMed	<a href="#">11463916</a>

### Database cross-references

EMBL	<a href="#">AE007337</a> ; <a href="#">AAK74421.1</a> ; -.
TIGR	<a href="#">SP0242</a> ; -.
InterPro	<a href="#">IPR003593</a> ; AAA_ATPase. <a href="#">IPR003439</a> ; ABC_transportr.
Pfam	<a href="#">PF00005</a> ; ABC_tran; 1.
ProDom	<a href="#">PD000006</a> ; ABC_transportr; 1.
SMART	<a href="#">SM00382</a> ; AAA; 1.
PROSITE	<a href="#">PS00211</a> ; ABC_TRANSPORTER; 1.

### Keywords

ATP-binding; Complete proteome;

Sequence information

Length: 363 aa, molecular weight: 40757 Da, CRC64 checksum: 3D9F10B1D8DD7731

MSEIKIINAK	KIYHDVPVIE	NLNITIPKGS	LFTLLGASGC	GKTTLRMI	A GFNSIEGGF	60
YFDDTKINNM	EPSKRNIGMV	FQNYAIFPHL	TVRDNVAFGL	MQKKVPKEEL	IQQTNKYLEL	120
MQIAQYADRK	PDKLSGGQQQ	RVTIACALAV	NPSVLLMDEP	LSNLEAKLRL	DMRQAIREIQ	180
HEVGITTYYV	THDQEEAMAI	SDQIAVMKDG	VIQQIGRPKE	LYHKPANEFV	ATFIGRTNII	240
PANLEKRSRG	AYIVFSDGYA	LRMPALDQVE	EQAIHVSIRP	EEFIKDESGD	IEGTIRDSVY	300
LGLNTDYFIE	TGFASKIQVS	EESTFEEDLQ	KGNRIRRLIN	TQKLNIFSAD	GSQNLIKGVN	360
HGT						363

//

[General](#) [Description](#) [References](#) [Links](#) [Keywords](#) [Sequence](#)